

Abstract

High Voltage Resistant Edge Structure for Semiconductor Components

5 ~~The invention relates to a~~ high voltage resistant edge structure in the edge region of a
 semiconductor component which has floating guard rings of ^athe first conductivity type
 and inter-ring zones of ^athe second conductivity type which are arranged between the
 floating guard rings, wherein the conductivities and/or the inter-ring zones are set such
 that their charge carriers are totally depleted when blocking voltage is applied. The
 10 inventive edge structure achieves a modulation of the electrical field both at the
 surface and in the volume of the semiconductor body. If the inventive edge structure
 is suitably dimensioned, the field intensity maximum can easily be situated in the
 depth; that is, in the region of the vertical p-n junction. Thus, a suitable edge
 construction which permits a "soft" leakage of the electrical field in the volume can
 15 always be provided over a wide range of concentrations of p and n doping.

Figure 2